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3 HIGH STRAIN PIEZO-POLYMER

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5 ABSTRACT OF DISCLOSURE

6 The present invention is a new class of terpolymers for use
7 as high strain electrostrictive polymer films. More
8 particularly, the invention is a class of electrostrictive
9 terpolymers comprising vinylidene fluoride (VDF),
10 trifluoroethylene (TrFE) and at least one monomer having at
11 least one halogen atom side group. The monomer is preferably an
12 ethylene-based monomer and preferably selected to favor *gauche*-
13 type linkage along the polymer backbone. The halogen atom side
14 group is preferably large enough to move or cause adjacent
15 polymer chains to be farther apart from or away from each other
16 than in the absence of such side group, but not so large that it
17 would inhibit polymer crystallites from forming. The monomer is
18 preferably a chloro-monomer such as chlorofluoroethylene (CFE).
19 The chlorofluoroethylene (CFE) is preferably 1-chloro-2-
20 fluoroethylene or 1-chloro-1-fluoroethylene. The
21 chlorofluoroethylene (CFE) favors *gauche*-type linkage which
22 favors high electrostrictive strains.